

Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: NEO-RAY

Report Number: P242231

Luminaire Tested: **S121RDR-S490D840-X4F0-XX-UDD-A-W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P242231
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1802-639-28)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: NEO-RAY
Catalog Number: S121RDR-S490D840-X4F0-XX-UDD-A-W
Description: DEFINE 1 REGRESSED DIRECT RECESSED WITH ASYMMETRIC FLUSH DIFFUSER
STANDARD LIGHT ENGINE
Light Source: (92) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1747.4 lumens
Efficiency: N/A
Efficacy: 92.9 lumens/watt
Spacing Criteria (0/90/45): 0.96 / 1.23 / 1.1
Luminous Opening: Rectangular (W 3.88' x L: 0.09' x H: 0')
CIE Type: Direct

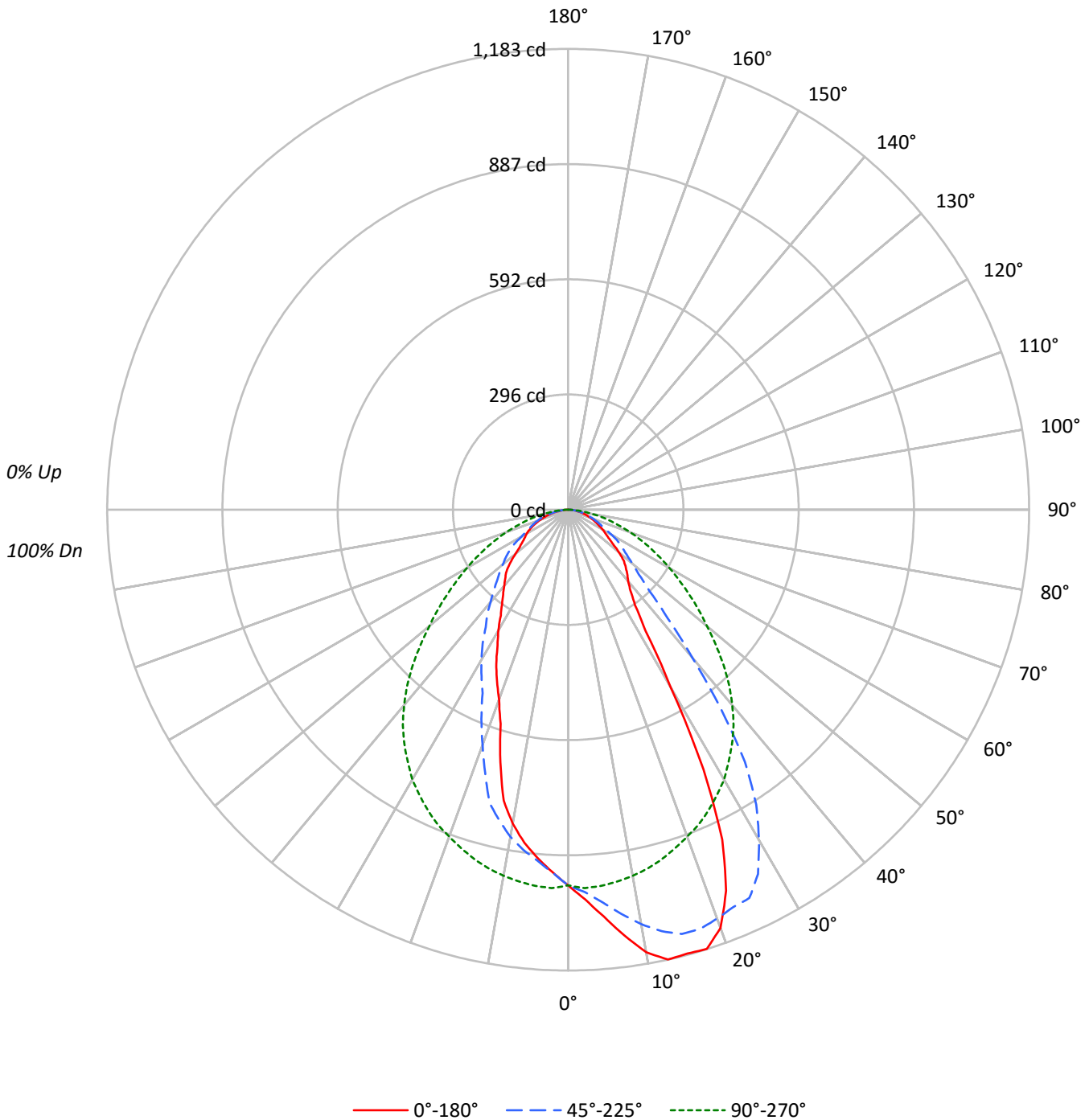
Input Watts (W): 18.8
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



TEST NUMBER: P242231

CATALOG NUMBER: S121RDR-S490D840-X4F0-XX-UDD-A-W

Luminous Intensity Polar Plot





TEST NUMBER: P242231

CATALOG NUMBER: S121RDR-S490D840-X4F0-XX-UDD-A-W

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20					20					
RC	80					70					50					30					10					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	111	107	103	100	108	104	101	98	100	97	95	96	94	92	93	91	89					87				
2	102	95	89	84	100	93	88	83	90	85	82	87	83	80	84	81	78					76				
3	94	85	78	73	92	84	77	72	81	75	71	78	74	70	76	72	68					67				
4	88	77	69	64	85	76	69	63	73	67	62	71	66	61	69	65	61					59				
5	81	70	62	56	79	69	62	56	67	60	55	65	59	55	63	58	54					52				
6	76	64	56	50	74	63	56	50	61	55	50	60	54	49	58	53	49					47				
7	71	59	51	45	69	58	51	45	57	50	45	55	49	45	54	48	44					43				
8	67	54	47	41	65	54	46	41	52	46	41	51	45	41	50	45	40					39				
9	63	50	43	38	61	50	43	38	49	42	37	48	42	37	47	41	37					35				
10	59	47	40	35	58	46	39	35	45	39	35	44	39	34	44	38	34					33				

AVERAGE LUMINANCE (cd/sqm):

	0°	90°	180°
0°	28575	28575	28575
5°	31188	28827	26700
10°	34711	28712	24611
15°	36190	28494	20598
20°	36034	28157	16349
25°	30558	27844	14270
30°	17986	27364	12255
35°	10808	26532	10703
40°	9256	25327	9875
45°	8749	23608	9390
50°	7822	21444	8122
55°	6519	19573	7341
60°	6056	17831	7307
65°	5595	16244	7067
70°	5276	14641	6662
75°	4980	12948	6056
80°	4453	10835	5324
85°	4182	8499	4182



TEST NUMBER: P242231

CATALOG NUMBER: S121RDR-S490D840-X4F0-XX-UDD-A-W

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	92.5	5.3
10°-20°	263.4	15.1
20°-30°	359.8	20.6
30°-40°	335.2	19.2
40°-50°	277.1	15.9
50°-60°	204.3	11.7
60°-70°	130.6	7.5
70°-80°	67.2	3.8
80°-90°	17.3	1.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	715.6	41.0
0°-40°	1050.8	60.1
0°-60°	1532.3	87.7
0°-90°	1747.4	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1747.4	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	964	964	964	964	964	
5°	1049	1012	969	905	898	103
15°	1180	1128	929	779	672	332
25°	935	1100	852	520	436	406
35°	299	790	734	369	296	203
45°	209	295	563	258	224	160
55°	126	169	379	185	142	116
65°	80	92	232	107	101	79
75°	44	48	113	60	53	46
85°	12	13	25	14	12	14
90°	0	0	0	0	0	



TEST NUMBER: P242231

CATALOG NUMBER: S121RDR-S490D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	25°	30°	35°	40°	45°	50°
0°	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4
2.5°	1001.4	1000.7	1001.8	1001.1	1000.3	998.5	997.1	992.7	986.2	982.6	986.2
5°	1048.6	1051.5	1050.4	1048.9	1045.7	1042.8	1036.2	1032.3	1020.6	1011.6	1014.1
7.5°	1102.2	1105.9	1101.1	1097.9	1096.1	1087.7	1080.5	1069.2	1056.5	1046.4	1040.6
10°	1153.7	1154.8	1153.4	1150.5	1144.3	1135.2	1124.7	1112.0	1096.1	1080.5	1070.0
12.5°	1182.7	1184.5	1186.7	1181.6	1176.9	1169.7	1158.8	1146.1	1126.5	1108.4	1096.4
15°	1179.8	1181.3	1185.3	1183.4	1181.3	1178.0	1171.8	1161.3	1147.6	1127.6	1110.6
17.5°	1182.0	1183.1	1184.9	1178.4	1174.7	1170.8	1162.8	1155.5	1143.9	1128.3	1115.6
20°	1142.8	1160.6	1158.4	1167.1	1170.8	1170.4	1162.8	1149.0	1133.0	1117.1	1111.3
22.5°	1058.7	1072.9	1074.7	1088.1	1104.8	1118.2	1134.9	1141.0	1128.7	1104.8	1096.8
25°	934.7	944.9	955.0	974.2	992.0	1029.4	1063.4	1089.2	1103.3	1100.1	1084.5
27.5°	751.3	740.4	780.6	802.7	852.4	906.8	954.7	1001.8	1024.3	1054.4	1069.6
30°	525.7	524.6	555.1	593.5	667.9	717.9	807.5	883.2	942.3	979.3	1020.6
32.5°	369.1	374.5	397.0	420.6	461.6	543.1	611.7	716.1	816.9	897.7	948.5
35°	298.8	299.5	304.6	318.7	343.7	389.0	442.3	543.9	680.6	790.4	866.2
37.5°	261.8	264.0	265.4	273.4	282.4	301.7	335.4	405.7	518.8	641.4	773.0
40°	239.3	241.1	242.6	245.1	250.5	259.6	281.7	315.4	380.7	493.5	639.9
42.5°	224.1	223.3	226.6	227.7	230.6	235.7	245.5	263.6	301.3	377.8	504.0
45°	208.8	209.9	209.9	211.4	213.9	216.8	220.8	232.0	251.3	294.8	393.8
47.5°	192.9	192.5	194.7	195.8	198.3	200.9	203.8	209.6	220.8	246.2	303.5
50°	169.7	170.4	174.4	178.0	181.7	184.9	188.5	192.2	199.4	213.2	248.4
52.5°	145.0	145.0	149.4	151.9	157.0	165.0	171.1	176.6	181.3	188.2	209.2
55°	126.2	126.5	128.0	130.2	133.8	137.8	145.8	155.2	163.2	169.0	180.6
57.5°	113.1	113.5	113.8	115.7	117.5	118.9	123.6	130.9	141.4	151.9	158.8
60°	102.2	101.9	101.9	103.0	104.4	106.2	108.8	111.7	117.5	128.7	141.0
62.5°	89.9	90.6	90.6	91.7	92.8	94.6	95.7	98.6	101.9	107.0	119.6
65°	79.8	80.5	79.8	80.9	81.6	82.7	84.5	85.9	88.8	92.1	97.2
67.5°	69.6	70.0	70.7	71.1	71.8	72.2	73.6	75.4	77.2	79.4	83.4
70°	60.9	60.9	60.9	61.6	62.4	62.4	63.5	64.2	66.0	68.2	70.3
72.5°	51.5	51.8	51.8	51.5	52.9	53.3	53.7	54.4	55.8	57.6	59.5
75°	43.5	42.8	42.8	43.1	44.2	44.2	44.6	45.0	46.0	47.5	48.6
77.5°	34.1	34.1	34.4	34.8	35.2	35.2	35.9	35.9	37.3	38.1	38.8
80°	26.1	26.8	27.2	26.8	26.8	27.2	27.2	27.9	28.3	28.6	29.4
82.5°	19.6	19.9	19.2	19.2	19.6	19.6	19.9	19.9	20.3	20.7	20.7
85°	12.3	12.3	12.7	12.3	12.7	12.3	12.3	13.1	12.7	12.7	13.1
87.5°	5.8	6.2	5.8	6.2	5.8	6.2	6.2	6.2	6.2	6.2	5.8
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242231

CATALOG NUMBER: S121RDR-S490D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	55°	60°	65°	70°	75°	80°	85°	90°	95°	100°	105°
0°	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4
2.5°	985.1	984.8	982.9	979.0	976.1	970.6	970.6	972.4	963.0	956.5	956.1
5°	1008.0	1004.3	998.2	990.6	983.7	974.2	970.6	969.2	956.5	946.7	943.4
7.5°	1032.3	1023.2	1012.7	1000.3	988.7	975.3	968.4	963.0	946.7	934.7	927.5
10°	1057.6	1043.1	1026.8	1009.0	993.1	975.0	963.7	954.3	935.4	918.8	910.4
12.5°	1080.1	1059.8	1039.1	1015.9	994.2	971.3	955.7	943.4	921.3	901.4	891.2
15°	1090.6	1068.9	1051.8	1019.9	990.6	967.4	947.4	928.9	905.3	883.2	867.6
17.5°	1099.7	1075.8	1053.3	1023.2	989.1	959.0	935.1	911.5	886.1	862.9	843.7
20°	1097.2	1076.8	1049.3	1017.4	985.1	950.3	923.1	893.0	861.5	837.9	817.6
22.5°	1082.6	1066.0	1037.3	1006.9	975.7	938.3	907.5	874.9	836.1	810.4	787.5
25°	1064.2	1048.2	1019.9	988.4	957.6	921.3	885.0	851.7	810.0	779.2	749.8
27.5°	1049.7	1025.7	997.4	962.3	932.5	898.1	860.0	826.3	781.3	747.3	713.2
30°	1033.0	1005.8	971.0	933.6	902.1	870.5	833.6	799.8	750.2	711.4	669.0
32.5°	985.1	985.5	944.1	902.4	868.7	835.0	802.0	766.1	716.8	671.1	627.6
35°	922.8	947.0	916.6	868.7	827.0	795.9	768.7	733.5	678.7	631.6	582.3
37.5°	839.4	882.1	885.8	836.1	790.1	753.4	726.6	697.2	642.1	591.4	542.4
40°	756.0	812.5	835.0	800.6	750.5	708.5	681.6	654.8	603.0	548.2	502.9
42.5°	653.7	745.5	773.4	763.2	709.6	664.2	636.0	611.7	561.3	507.6	462.6
45°	538.4	662.4	703.0	713.5	668.2	619.6	587.0	563.4	519.2	472.1	425.3
47.5°	432.6	568.9	636.0	646.8	622.9	575.8	538.4	513.8	478.6	438.0	391.6
50°	329.9	469.5	565.6	582.3	576.5	528.6	494.2	465.2	438.4	402.1	358.6
52.5°	262.5	375.3	489.5	520.7	522.5	484.8	448.5	422.0	395.9	367.3	327.8
55°	209.6	290.1	405.7	458.7	463.7	437.6	404.3	378.9	359.3	332.5	299.1
57.5°	176.6	224.4	324.9	396.3	398.5	391.2	359.3	338.3	322.0	298.8	269.4
60°	150.8	178.0	250.5	333.9	344.8	344.8	319.4	300.9	285.3	267.9	240.0
62.5°	130.5	145.4	190.0	265.4	293.3	297.7	281.7	265.4	253.8	236.4	210.7
65°	109.9	121.1	147.2	205.2	243.7	251.6	243.7	231.7	222.6	204.5	184.2
67.5°	90.3	101.2	117.5	155.5	197.6	207.4	205.9	199.8	190.4	176.9	155.5
70°	74.7	81.2	93.2	115.3	155.2	170.0	174.4	169.0	160.6	146.1	130.5
72.5°	61.6	66.7	72.5	88.5	116.0	135.6	142.9	140.0	133.8	120.0	107.0
75°	50.4	53.7	57.6	65.3	83.4	105.5	113.8	113.1	107.0	95.4	84.8
77.5°	40.6	41.7	44.6	49.3	58.4	78.3	84.8	87.0	82.3	72.5	64.2
80°	30.5	31.9	33.4	35.9	40.2	51.8	60.2	63.5	59.5	53.7	45.3
82.5°	21.4	21.8	23.2	24.7	26.8	31.5	40.2	43.9	40.2	34.1	31.5
85°	13.4	13.1	13.4	13.8	16.0	17.0	22.5	25.0	24.3	20.7	17.8
87.5°	6.2	6.2	5.8	6.2	5.8	6.9	8.0	11.6	8.7	7.6	6.9
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242231

CATALOG NUMBER: S121RDR-S490D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	110°	115°	120°	125°	130°	135°	140°	145°	150°	155°	160°
0°	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4	964.4
2.5°	953.2	952.1	948.5	943.4	939.1	931.8	931.8	933.6	933.3	934.0	933.3
5°	938.0	932.9	927.5	920.6	914.1	904.6	903.5	904.3	903.9	903.5	901.4
7.5°	918.4	912.6	905.7	897.0	889.8	880.7	878.2	877.4	874.5	873.4	870.5
10°	899.5	892.7	883.6	873.1	863.3	852.8	846.3	842.6	837.9	832.8	828.5
12.5°	878.5	869.5	857.9	845.2	828.8	817.2	807.5	801.3	794.8	786.1	779.9
15°	856.0	837.5	823.8	803.1	783.2	779.2	764.3	744.7	743.3	700.9	686.0
17.5°	825.9	810.7	785.0	758.1	731.0	708.8	709.2	656.3	639.9	639.6	613.5
20°	794.8	773.7	744.0	716.8	688.2	642.5	606.2	588.8	562.4	552.2	537.3
22.5°	758.1	730.6	695.8	658.8	618.9	581.9	546.4	529.7	516.3	505.1	498.9
25°	714.6	686.7	645.0	599.0	554.4	519.9	500.4	492.7	469.9	461.9	454.3
27.5°	670.8	640.3	585.9	541.7	505.1	481.5	461.2	448.5	437.6	417.3	408.3
30°	629.1	580.1	535.2	494.6	467.0	444.9	430.0	404.3	389.0	379.6	375.6
32.5°	583.7	531.5	490.9	455.8	427.5	408.3	386.1	368.7	361.8	349.5	331.8
35°	537.3	489.8	447.4	419.1	394.8	368.7	355.0	338.3	320.9	311.5	310.0
37.5°	492.4	447.4	417.0	387.2	357.9	342.6	322.3	304.6	298.4	289.7	280.3
40°	451.8	413.3	385.1	351.0	333.2	309.6	294.0	285.0	270.1	266.9	264.0
42.5°	418.4	385.4	353.5	323.1	302.4	283.5	269.8	259.2	254.5	246.6	244.0
45°	384.7	354.2	321.6	297.7	274.1	258.2	248.7	239.7	234.2	232.0	227.7
47.5°	354.2	324.5	294.4	265.0	249.1	238.6	228.1	223.3	220.1	215.4	212.8
50°	325.2	292.2	264.0	245.5	228.4	219.0	212.1	207.8	202.7	197.6	190.4
52.5°	295.9	267.6	240.4	220.8	208.1	202.0	195.4	190.7	180.6	170.8	164.6
55°	266.1	237.1	215.0	200.1	191.1	184.6	176.9	163.2	153.7	148.3	145.4
57.5°	239.3	213.2	193.6	181.3	174.8	163.9	150.5	141.8	137.1	134.9	133.4
60°	210.7	188.2	171.9	162.4	152.3	137.8	130.5	126.2	124.7	124.0	122.9
62.5°	186.0	166.1	153.4	142.9	128.4	120.7	116.7	114.6	114.6	113.5	112.8
65°	159.9	144.3	133.4	118.2	110.6	107.3	105.9	104.8	103.7	103.3	101.9
67.5°	138.5	124.7	110.6	102.6	97.9	96.1	94.6	94.3	92.8	91.7	90.6
70°	116.7	103.3	91.7	88.1	85.6	84.8	83.4	81.9	80.9	79.4	78.7
72.5°	95.0	82.3	78.3	76.5	74.0	72.9	71.1	70.0	68.2	67.4	66.7
75°	72.5	67.4	65.3	63.8	62.0	59.5	58.7	57.6	56.9	55.8	54.7
77.5°	57.6	54.7	52.2	50.4	48.9	47.1	45.7	45.3	44.6	43.5	43.1
80°	43.1	41.0	39.9	38.1	36.3	35.2	34.4	34.1	33.0	32.6	32.3
82.5°	29.7	27.9	27.2	25.0	24.3	24.3	23.9	23.2	22.5	22.1	21.8
85°	16.7	16.0	14.9	15.2	14.1	14.1	13.8	13.4	13.1	12.7	12.3
87.5°	6.5	6.2	5.8	5.4	5.4	4.4	4.4	4.4	4.7	4.4	4.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



TEST NUMBER: P242231

CATALOG NUMBER: S121RDR-S490D840-X4F0-XX-UDD-A-W

CANDELA DISTRIBUTION (continued):

	165°	170°	175°	180°
0°	964.4	964.4	964.4	964.4
2.5°	934.4	935.1	932.5	931.1
5°	901.4	900.3	898.8	897.7
7.5°	867.6	866.6	866.6	862.2
10°	826.7	823.8	821.6	818.0
12.5°	774.5	770.1	768.7	764.3
15°	675.8	666.8	660.6	671.5
17.5°	607.3	583.7	585.6	576.5
20°	537.0	527.5	532.3	518.5
22.5°	491.3	485.5	480.0	477.1
25°	448.9	442.0	433.6	436.5
27.5°	395.6	395.6	390.1	392.3
30°	368.4	365.5	356.4	358.2
32.5°	326.0	322.3	321.2	322.0
35°	305.7	299.8	298.0	295.9
37.5°	277.4	275.2	275.6	274.1
40°	258.5	256.7	254.5	255.3
42.5°	242.2	241.1	238.9	239.3
45°	226.2	225.2	224.1	224.1
47.5°	208.5	206.3	204.5	202.3
50°	185.3	180.9	177.7	176.2
52.5°	160.3	158.1	155.9	155.9
55°	144.3	143.2	142.5	142.1
57.5°	133.1	132.3	132.3	131.3
60°	122.9	122.9	122.6	123.3
62.5°	113.1	112.0	112.4	112.4
65°	101.9	101.5	101.2	100.8
67.5°	89.9	89.6	89.9	89.2
70°	78.0	78.0	77.6	76.9
72.5°	65.6	66.4	65.6	65.3
75°	54.0	53.7	54.0	52.9
77.5°	43.1	41.7	42.4	42.8
80°	31.9	31.9	31.5	31.2
82.5°	21.4	21.8	21.0	21.0
85°	12.3	12.3	11.6	12.3
87.5°	3.6	3.6	3.6	4.4
90°	0.0	0.0	0.0	0.0

(END OF REPORT)